

THURSDAY, OCTOBER 14, 1875

THE INAUGURATION OF THE YORKSHIRE
COLLEGE OF SCIENCE

THE formal opening of the College of Science at Leeds by the Duke of Devonshire, which we briefly announced last week, is an event of no mean importance to the county, and of no small interest to the rest of the community, inasmuch as we must regard it as another indication of the great educational movement which has already been experienced by Manchester, Newcastle, Birmingham, and Bristol, and is beginning to be felt more or less strongly in every industrial centre throughout the country. This movement, as Mr. Forster tells us, is not merely to give education to the captains of industry; it is to increase the culture of every individual working man and working woman in the land, and to give them not elementary education alone, but skilled knowledge to enable them to earn their living as efficiently as possible by affording them the key to the stores of knowledge.

It really appears that at last, in this county utterly devoid of any organisation for anything but the lowest education, there are persons who are gradually realising the fact, the statement of which has been dinned into our ears by the best informed minds for more than a quarter of a century, that the industrial supremacy of this country depends on other factors than natural resources, mental vigour, industry, and perseverance. The illustrious Liebig more than a generation ago, and in the very town which witnessed the ceremony of last week, warned us how impossible it was for England permanently to preserve this supremacy unless she bestowed more attention on the sciences which formed the basis of her chief industries. Nothing could be happier than the coincidence that Dr. Playfair, who then interpreted this memorable saying of the great German philosopher, should be present to see the Yorkshire people establishing an educational organisation, which is in no small degree the outcome of the counsel given to them so long ago. Truly the bread cast upon the waters has returned to Leeds after many days. And now let the promoters of the Yorkshire College take heed to the words of counsel given by the many eminent men whom they invited to take part in the opening ceremony. If the county is as earnest in furthering its welfare as we believe it to be, the institution ought not to remain long on its present limited basis: we hope and trust that the opinion of its President, Lord Frederick Cavendish, that to restrict the College to natural science would make it "a one-legged, one-sided concern," is shared by the rest of the Council. We do not want a Yorkshire College of Science, but a Yorkshire College in which science will be found in its proper place. It must be remembered that the whole duty of these local colleges is not limited to the instruction in the particular sciences which more directly relate to the manufacturing industries of the districts in which they are placed; they must be made to act as *nuclei* for higher culture by the establishment of chairs of Art and Literature. As Dr. Playfair told the people of Leeds, "a College of Science, such as we are inaugurating to-day,

VOL. XII.—NO. 311

is admirable in itself, but it is not complete. Perhaps it even focusses the light too strongly on a particular spot, and for this reason it intensifies the darkness around. Its directors are too enlightened men not to see this, and I am sure they will aid in the co-ordination of your other educational resources." We are aware that the establishment of an institution on so broad a basis as we have indicated is a work of time and patience, but that it can be accomplished, and in the face of great disadvantages, is evident from the example of Owens College. There are doubtless special difficulties in the case of the Yorkshire College; no John Owens has yet come to its aid with a munificent endowment, nor has it the advantage of being connected with an established institution in the manner that the Newcastle College is affiliated to Durham, or the proposed Bristol College to Oxford.

Yorkshiremen are proverbially a hard-headed race, with a keen eye to immediate practical benefits, but they must have patience, not forgetting that institutions similar to their own College have had their day of small things, and that it has needed much money and much time before their advantages have been fully realised. We have just one more word of advice and caution. The wealthy manufacturers who, roused by the fear of foreign competition and the cry for technical education, aid the struggling institution with their money, may be too apt to demand the establishment of technical classes as the condition of their support; and in consequence of the outside pressure thus exerted on the government of the College, it may be driven to regard such classes as the main feature of the work of the professors and lecturers.

We would counsel the College authorities to weigh well the words of the gentleman whose advice they specially asked. Dr. Playfair warned them against giving the College too much of a technical character, at least in its infancy. "The object of education, even in a technical school, is not to teach men how to use spinning jennies or steam-hammers, but it is to give a cultured intelligence which may be applied to work in life, whatever that may be. Teach science well to the scholars, and they will make the applications for themselves. Good food becomes assimilated to its several purposes by digestion. Epicurus used to say that though you feed sheep on grass, it is not grass but wool which grows upon their backs. So if this College teach science as a branch of human culture, it will reappear as broad cloth, worsted, puddled iron, or locomotives, according to the digestive capacities of the Leeds manufacturers who consume it."

BURTON'S "ULTIMA THULE."

Ultima Thule; or, a Summer in Iceland. By Richard F. Burton. With Historical Introduction, Maps, and Illustrations. Two vols. (Edinburgh and London: W. P. Nimmo, 1875.)

OF the 780 pages which make up these two handsome volumes, only one half is occupied with an account of Capt. Burton's doings in Iceland during the summer, June to September 1872, which he spent there. No one, of course, can conceive Capt. Burton having any temptation to the production of a mere big book, and we have no

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doubt that his object has been to enlighten the British public as to the real condition of Iceland and its interesting people. Indeed he hints as much in his preface; "the main object of the book," he says, "has been to advocate the development of the island."

Capt. Burton's method of accomplishing his object will, certainly be effective with those who take a real interest in Iceland, and who are willing to take the trouble to master the contents of his two volumes. The Introduction, covering 260 pages, consists of a condensed mass of facts compiled from many sources, relating to Iceland in all its aspects, and he who studies them thoroughly will be well rewarded for his pains; besides the mere pleasure of adding to his knowledge, he will possess an excellent vantage-ground from which to watch the progress of the island and any future attempts that may be made to increase our knowledge of it. Iceland is gradually becoming a popular tourist-ground, and when good hotels are built and the means of travel are improved and organised, no doubt it will be included in the programme of the omnipresent Cook. Intending travellers, as well as all who desire to see the most trustworthy information about Iceland put in an accessible form, ought to feel grateful to Capt. Burton. He has indeed acted in a very unselfish manner in thus compiling what is really a valuable monograph on Iceland, instead of concentrating the attention of the public exclusively on himself and his own experiences in the country. So great an explorer as Capt. Burton has long ago proved himself to be would have been perfectly justified in so doing, and therefore the voluntary service he has rendered to Iceland and the British public is all the more enhanced.

There has been a great deal more written about Iceland than most people are aware of; in his Introduction, Mr. Burton gives a list of no less than fifty works, mostly English narratives of travel, which have been written during the present century, not to mention all that has been written in previous centuries. The author has not, however, confined himself in collecting his facts and theories to what has been published, but has drawn largely on the liberality of willing friends who have made special studies of various points connected with the country, its history, and its people. The result is, we believe, a handier and more complete account of Iceland than will be found in any other single work.

The first section of the Introduction treats "Of Thule," and consists of a formidably learned discussion as to the applications which the classical term has had in various writers and at various times, from Pytheas of Marseilles downwards. Of course the important point in such a discussion is to ascertain what Pytheas meant by the term; and although it seems to us that the few details concerning "Thule" which have been preserved apply more appropriately to Iceland than to any other country which has been proposed, we are inclined to doubt with St. Martin (*"Histoire de Géographie,"* p. 104) whether Pytheas ever saw the country, and to think it more probable that he got his accounts from the inhabitants of North Britain. This, however, is not the place to discuss such a question, even had we space. Capt. Burton, who seems to take delight in advocating improbable theories, makes much more than we think the evidence justifies of the few ecclesiastical remains which the

first Norsemen found on the island, and of the traditions concerning the Irish ecclesiastics who at one time found their way to the coasts. These latter no doubt found their way to Iceland at first by accident; afterwards very probably they may have resorted to it in considerable numbers because there they could live in retirement "far from all men's knowing." But, apart from these Irish priests, Mr. Burton is inclined to believe that Iceland may have had a considerable prehistoric population, the remains of which he does not despair of seeing brought to light. At present there is no evidence whatever on which to base such a belief, and had any such population ever existed in the island, we may be almost certain that some indications of its existence would have been met with during the thousand years that the Norse have possessed it. The Bull of Gregory IV., dated about 835 A.D., in which Iceland and Greenland seem to be mentioned, cannot but be regarded with the gravest suspicion, and we have a strong impression that quite recently conclusive proof has been found that the names of these two countries are interpolations.

Capt. Burton concludes this section by referring to the various etymologies that have been proposed for the term "Thule;" we dare say most readers will be struck with the hopelessness of ever finding an origin for the word, and with the utterly improbable theories which the most learned men allow themselves to advance. Here we may remark that one of the notable points of the work before us is etymology; Capt. Burton seldom, we might with confidence say never, introduces a Norse word—and his pages bristle with them—without giving its etymology. This is a most commendable feature, though its value is much diminished by the want of a sufficient index, the three pages at the end of the work being quite inadequate to a book so rich in facts of all kinds. We think it would have added to the value of the work and the comfort of the reader, if a special etymological index had been given. Capt. Burton's flights into comparative etymology are sometimes of the most daring kind. And the reckless way in which he resorts to Semitic and even Turanian languages for congeners to Aryan roots and even Teutonic words, will rather astonish sober students of the science of language.

Besides a sketch of the history of Iceland, the author furnishes in the Introduction valuable details concerning the following matters:—Physical Geography, including Geology, Hydrography, Climate, Chronometry, &c.; Political Geography, Anthropology, Education and Professions, Zoological Notes (including notes on the Flora, Agriculture, Fishing, Industry, &c.), Taxation, and a *Catalogue-raisonné* of Modern Travels in Iceland, besides instructions as to what preparations an intending traveller ought to make. Under these various heads there are many points we should like to notice did space permit; under all of them the reader will find a vast amount of useful information, which it must have taken Captain Burton no little trouble to collect and condense. In speaking of the climate, Capt. Burton doubts much if the Gulf Stream has anything to do with its comparative mildness, and especially the commonly accepted theory that a branch of the great "river in the ocean" bifurcates

off the south-west corner, one arm proceeding northward and the other along the south coast, both reuniting in the North Atlantic between Iceland and Norway. We have certainly much yet to learn about the causes which contribute to form the climate of a country, but without the action of some such influence as would be derived from the Gulf Stream, it seems to us difficult to account for the comparatively mild climate of Iceland as contrasted with the decidedly Arctic climate of countries in the same latitude. But this is a dangerous question to enter upon; what is wanted at present is not so much discussion as facts.

Capt. Burton tells us in his preface that he "went to Iceland feeling by instinct that many travellers had prodigiously exaggerated their descriptions, possibly because they had seldom left home." Stay-at-home people will therefore be grateful that so experienced a traveller and so trained an observer as Capt. Burton has gone over the old ground and told them in a plain, matter-of-fact, yet exceedingly graphic way, what is actually to be seen. In his account of his tour the usual "stupendous" writing will not be found, and many indeed may be inclined to think that the narrative has too much of the "nil admirari" spirit about it. This is not our opinion: Capt. Burton shows frequently throughout the work that he is quite prepared to admire all that is admirable in the country and its people, and concerning the latter especially, it was quite time that we should have a sober and trustworthy account. Travellers hitherto have been too much inclined to look upon the Icelander under quite an auroral glow, as a descendant of the "Hardy Norseman" with his traditional tawny beard, fair hair, brawny build, splendid fighting qualities, with an infusion of rude gentleness. The Icelander is no doubt a descendant of the dauntless men who contributed their share in the building up of the English people, but there seems little reason to doubt that he is a degenerate one. If we can believe Capt. Burton, as well as the reports of some other recent travellers, the chief virtue of the Icelander is laziness, which keeps him as well from doing harm as positive good. Even that gentleness of manner and primitive simplicity of social intercourse which early travellers tell us characterised the people, seem to be rapidly leaving them. But this is inevitable, and from a practical and humane point of view not to be regretted; it is the first stage in the breaking up of their long lethargy, and to doing away with a condition of society which is really an anachronism. There does not seem to be native energy sufficient to the development of the resources of the country, and it is well that foreign attention and foreign capital should be drawn to it, [especially with an eye to the no doubt extensive sulphur resources; we believe such intercourse would benefit the Icelanders by bringing them, with all their dormant good qualities, into the active life of the present.

It is unnecessary to follow Capt. Burton in what was to a great extent a tour, though an unusually critical one, over previously trodden ground, rather than a journey of exploration. He begins at the end with pretty full notes of a visit to Orkney and Shetland, which he paid on his return from Iceland. Concerning the prehistoric and other antiquities of these islands he has of course something to say, and we commend his criticisms to the anti-

quarian. In Iceland he stayed some time at Reykjavik before setting out to explore the island, and concerning the capital, its institutions and people, as well as what is to be seen in the neighbourhood, he has much to say, finding a little to praise and a great deal to blame. The Icelander can obtain a very fair education in his own country, with even a smattering of science, and it seems to us that it would not take much to convert the High School of Reykjavik into a really good high-class school. Much has been expected to result from the new constitution granted to Iceland last year; we have no doubt that this, combined with other new influences, will have a good effect upon what we cannot but regard after all as a healthy scion of a good stock. After spending some days at the capital Capt. Burton set out on a trip to the north in the *Jón Sigurðsson* steamship. The principal features of the west and north-west coast are described with considerable minuteness, and many interesting details given concerning the various places at which the steamer stopped—Stykkishólm, Flatey, Eyri or Isafjörð, Borðeyri, and Grafarós, the termination of the trip. At every stopping-place Capt. Burton used the short time at his disposal most industriously in making himself acquainted with whatever was noteworthy. Some space is devoted to the Snæfellsjökull (4,577 Danish feet) and its associations, and to the striking features which characterise the bold north-west peninsula.

On his return from the northern trip, Capt. Burton made the popular round from Reykjavik by the Krisuvik sulphur springs, Hekla, the Geysirs, Thingvellir, back to the starting-point. Here his observations are especially minute, and his descriptions somewhat photographic, as it is in reference to this region that previously travellers have been specially exaggerative. Capt. Burton has of course seen too much of some of the most "stupendous" scenery in the world to be much impressed with any of the features to be seen in this often travelled round. It is evident, however, that he desired to observe without bias, and to record impartially what he saw; and if at times he seems too depreciatory, there is ample excuse for his measured statements in the irritation naturally caused by the ecstatic descriptions of previous travellers. With regard to the sulphur deposits at Krisuvik and in the Myvatn district, ample information will be found in the work; Mr. Vincent's paper read at the Society of Arts is reproduced, and a considerable appendix is devoted to the subject, consisting of papers by various authorities who have given attention to the subject. Capt. Burton himself seems to think that much more can be made out of the Myvatn district than out of that of Krisuvik.

Hekla, Capt. Burton speaks of as a humbug, and its ascent mere child's play. "The Hekla of reality is a commonplace heap, half the height of Hermon, and a mere pigmy compared with the Andine peaks, rising detached from the plains. . . . A pair of white patches represent the 'eternal snows.' . . . We [there were two young ladies with him] had nerved ourselves to 'break neck or limbs, be maimed or boiled alive,' but we looked in vain for the 'concealed abysses,' for the 'crevasses to be crossed,' and for places where 'a slip would be to roll to destruction.' We did not sight the 'lava-wall, a capital protection against giddiness.' The snow was anything but slippery." In short, for those who have never seen

a volcano, Hekla may be a wonder, but as compared with other volcanoes it is a mere smoking cinder-heap. Whatever may be the value of Capt. Burton's conclusions, his minute comparative study of this notable feature of Icelandic scenery deserves attention. The Geysirs also he inspected with considerable minuteness, and concludes that in their present condition they are "like Hekla, gross humbugs; and if their decline continues so rapidly, in a few years there will be nothing save a vulgar solfatara, 440 by 150 yards in extent." In this connection a pretty full account is given of the various attempts which have been made to account for the action of Geysirs. The whole of this portion of the narrative we deem of special value.

Capt. Burton's final trip was to eastern Iceland. He sailed from Reykjavik to Berufjörð on the east coast. Thence [he proceeded with a small cavalcade on ponies north-west by devious ways to the My-vatn, the lake in the neighbourhood of which sulphur is so plentiful. The lake itself and the neighbouring district he describes in considerable detail, and notes carefully the prominent features to be met with in the route from Berufjörð. On his return he attempted to climb the steep pyramidal mountain of Herðubreið (5,447 feet), a few miles south of My-vatn, but after a strenuous effort failed to reach the summit. He also paid a visit to Snæfell and the northern boundary of the great glacier Vatnajökull, which for the first time has been recently crossed by the indomitable Mr. Watts. Capt. Burton speaks of the glacier with considerable enthusiasm, and gives a minute and striking picture of all he was able to observe; and now that Mr. Watts has shown the way, we may hope ere long to have its main features observed and described in detail. While in this region the traveller was in the vicinity of the mysterious "central desert of Iceland, the Óðáða Hraun, which the ignorant natives still people with fierce robbers.

Capt. Burton thus nearly accomplished the circuit of the island, and it is impossible in the space at our disposal to give any adequate idea of even his personal narrative. His lively pictures, sketched with the hand of a master, of Icelandic character and of social life among all classes, are specially attractive. Nothing worthy of note escapes his observation, and both the scientific and the "general" reader will find the work to abound in interest and instruction. As a corrective to the usual indiscriminating narrative of Icelandic travel, it is invaluable. As we said at the beginning, the work as a whole will give a better idea of the country from all points of view than any other single work hitherto published.

One of the most marked features in Capt. Burton's style is its digressiveness and excessive allusiveness; in the present work he carries it often to a perplexing extent, and unless the reader be as well-informed as the traveller himself, he is apt to get bewildered. This feature enforces the most careful reading, and we therefore, perhaps, ought not to consider it a fault.

The lithographic and other illustrations which adorn the work are creditably done and add to its value. The general map is very good and useful, but would have been more so had it been on a larger scale. The special map of the My-vatn and Vatnajökull district is excellent. The publisher deserves the word of praise which the author awards him in the preface.

DUPONT AND DE LA GRYE'S "INDIGENOUS AND FOREIGN WOODS"

Les Bois indigènes et étrangers : Physiologie, Culture, Production, Qualités, Industrie, Commerce. Par Adolphe E. Dupont et Bouquet de la Grye. (Paris: Rothschild. London: Asher and Co., and Williams and Norgate.)

THE science of forest conservation, as is well known, is much more carefully attended to in France and Germany than it is in England or even in India, where, indeed, much has been done of late years in the conservation of the valuable timber trees in which the forests of our Eastern Empire abound.

Though it cannot be denied that Scotland turns out some clever foresters, it is in Continental Europe that forestry is taught under a complete system, practical lessons and lectures being conducted in the forests themselves amongst the very objects which it is the aim of the student to become closely acquainted with. The forest, to the young forester, is in every respect what the hospital is to the medical student. In it he sees the various forms of disease or of injury resulting from mismanagement, and by comparison of the effects of judicious and scientific treatment the means of success or failure are practically demonstrated. It is from these facts that the curriculum of training young officers for the Indian forest service, which now obtains, includes a given time of study in France or Germany. In consideration of this established and systematic course of instruction, it is not surprising that there should issue from the Continental press from time to time some valuable works on forest produce, either with regard to the cultivation of the trees or the utilisation and application of their timber.

The work before us is one which we should not expect to be produced in England, except, perhaps, as a translation. It is a bulky book of 552 pages, and is of a very comprehensive nature, including the consideration of all matters connected with trees from the very beginning of life to the commercial aspects of the timber trade. Being the joint production of a naval architect and a conservator of forests, each author has done much towards making the book valuable to all interested in the growth and production of timber.

The first chapter is devoted to the physiology of plants, and occupies 128 pages; rather too much, it must be confessed, when it is borne in mind that a good deal of the ground has been gone over before in most manuals of botany: the latter part of the chapter, however, is interesting, as showing the effects of climate, altitude, rains, &c. Chapter II. treats of cultivation in its various phases, and its effects upon the quality of the woods in a commercial point of view. Passing over the chapter on forest statistics, in which some interesting comparisons are given on the extent of forests in France, Germany, Russia, Sweden, Norway, &c., and passing also that on the working of the forests, in which, however, is a notice on the production of charcoal—essentially a French industry—we come to Chapter V., on the quality and defects of wood. This subject is treated of very fully in its various bearings; and with regard to the drying or desiccating process, which is a very important matter, as upon it rests nearly the whole question of commercial value, we have some facts, many of which, though not